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Forest Trees

containing

for their Identification Based on the Leaves and Fruit

JBy

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Moder Victo School Melony Sundy—

Explanation.

HIS Key to the Forest Trees is based mainly on the characters of the leaves. In difficult groups, like the Oaks, etc., it is necessary to have, for satisfactory identification, the fruits also. These can usually be found under the tree at any time of the year sufficiently preserved to show the important characters.

The few unavoidable technical terms used in the Key and in the descriptions will be found in the larger dictionaries, or in the glossary of any of the text-books on botany.

One unfamiliar with the use of the Key, need only be told to read the first two lines of the Key on the opposite page, one of which will describe the specimen in hand. Then follow the reference-letter at the end of that line, reading the lines (below) that are headed by that letter. Decide as before which of these lines is applicable and follow the appended reference again. Continue thus till a line is reached at the end of which is no reference-letter to subsequent lines, but a number and name (of a Genus of plants) are given. Find this number and generic name on the subsequent pages. The one or more species (kinds) will there be described. Careful consultation of the descriptions will conclude the work, the correct species being readily determined.

The scientific names are given in accordance with the revised list recently prepared by a committee of the Botanical Club, American Association for the Advancement of Science. Synonyms are added only where names are not the same as in Gray's Manual, Sixth Edition.

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OHIO FOREST TREES.

KEY BASED ON LEAVES AND FRUIT.

	Cone-bearing plants, or the so-called "evergreens" (a).	vo:
	Plants not cone-bearing; the so-called "deciduous" trees (c).	
<i>a</i> .	Leaves needle-shaped, 2-5 in a sheath	1
<i>a</i> .	Leaves not in a sheath, very many in a cluster	2
<i>a</i> .	Leaves scattered, petioled, whitened beneath	3
<i>a</i> .	Leaves scale-like and adnate, or free and awl-shaped (b).	
	b. Leaves 2-ranked, fruit a cone with few scales	4
	b. Leaves not 2-ranked, fruit a berry-like cone	5
c.	Leaves simple (n).	
c.	Leaves pinnately compound (a few may be trifoliate) (d).	
c.	Leaves palmately compound	40
	d. Leaves pinnate (a few of them may be trifoliate) (f).	
	d. Leaves bipinnate or decompound (a few may be simply pinnate) (e).	
е.	Tree thorny, leaflets small, leaves often pinnate	33
е.	Not thorny, leaflets large, leaves very large	34
	f. More or less thorny or prickly (g) .	
	f. Not at all thorny or prickly $\langle h \rangle$.	
g.	Large tree with large mostly-branched thorns, leaves mostly bipinnateGleditschia,	33
g.	Small trees, prickly spines for stipules, leaves never bipinnate	35
	h. Leaflets 3-5, twigs light-green; fruit a double samara	39
	h. Leaflets 5-many; twigs, etc., not as above (i).	
i.	Leaves 2-4 ft. long; leaflets 21-41; bark smooth	36
i.	Leaves not so long; leaflets less numerous (k).	
	k. Pith of twigs in transverse plates, leaflets many	6
	k. Pith not in transverse plates (l) .	
Z.	Small trees, flowers and fruit in panicles	37
I.	Large forest trees (m) .	
	m. Leaves alternate; fruit a nut (hickory-nut)	
	m. Leaves opposite; fruit winged at apex	46
n.	Leaves opposite or verticillate $\langle o \rangle$.	
n.	Leaves alternate $\langle q \rangle$.	
	o. Leaves all deeply or slightly lobed; fruit a double samara	39
	a Leaves entire (b.	

	N	Ю
	Tree with very broad leaves; pods elongated	
p.	Small tree; leaves ovate; fruit a red drupe	45
	q. More or less prickly or thorny; small trees (r) .	
	q. Not at all prickly or thorny (t) .	
r.	Only the margins of the thick, evergreen leaves spiny	38
	No spines except stunted branches (s).	
γ.	Stout axillary spines; leaves shining; juice milky	
	s. Pome drupe-like, containing 1-5 bony stones; leaves lobed or wedge-obovate. Cratægus,	
	s. Drupe fleshy with bony stone; leaves coarsely or doubly serrate	3.
	s. Pome fleshy, the carpels (or cells) papery or cartilaginous; leaves ovate, oblong or	
	lanceolate, cut-serrate, toothed or lobed	28
t.	Leaves very broad, sharply lobed, palmately veined; bark exfoliating from young trunks	
	and branches annually in plates; branches greenish-white	
	Leaves few-lobed, truncate at the appex with a very broad shallow notchLiriodendron,	22
t.	Leaves star-shaped with 5-7 long lobes, shining, glandular-serrate; the bark of branchlets	
	usually with corky ridges	26
	Leaves not as above, entire (u).	
	Leaves not as above, denticulate, toothed or serrate (x) .	
ι.	Leaves not as above, lobed (w). u. Bark spicy-aromatic and very mucilaginous; leaves often lobedSassafras,	0.4
	u. Not spicy-aromatic; leaves thin, obovate-lanceolate, pointed, 5-10 in. long, 2-4 in.	24
	wide, very smooth	0 2
	u. Not spicy-aromatic; leaves thin, oblong, pointed, green and a little pubescent be-	20
	neath, 5-10 in long	21
	u. Not spicy-aromatic and not as above (v).	
71.	Leaves large, round-cordate, pointed; flowers preceding the leaves	32
	Leaves ovate, pointed, pale beneath, veiny	
	Leaves oval or obovate, commonly acuminate, 2-5 in. long	
	Leaves thickish, ovate-oblong or elliptic, abruptly acuminate, glaucous beneath, 3-5 in.	
7	long; petioles, veins and margins puberulent	45
ν.	Leaves lanceolate-oblong, thickish, smooth and shining above, downy beneath; fruit an	
	acornQuercus, 1	16
	w. Bark spicy-aromatic and very mucilaginous; some leaves entireSassafras, 2	24
	w. Leaves broad, cordate-ovate, serrate, on young shoots mostly lobed	19
	w. Leaves cut-lobed at the apex, round ovate or ovate-oblong; pome drupe-like, containing 1-5 bony-seeded stones; large shrub or small teee	30
	w. Leaves, ovate, oblong or lanceolate, acute at base or often rather cordate, cut-ser- rate or lobed; pome with 2-5 papery or cartilaginous carpels; small tree Pyrus, 2	28
	w. Leaves variously lobed; fruit an acorn; large treesQuercus, 1	6
x.	Leaves finely serrate or denticulate (y).	
x.	Leaves sharply, coarsely, doubly, or sinuately serrate or dentate (z).	
	y. Leaves oblong-lanceolate, pointed, serrulate, on slender petioles; the white flowers and oblong 5-celled pods in long, 1-sided racemes clustered in panicles Oxydendron, 4	4
	y. Leaves ovate to oblong or broadly elliptical, acute or pointed, very sharply or finely serrate; the flowers and the 10-seeded berry-like fruit racemoseAmelanchier, 2	29
	y. Leaves oblong to lanceolate, oval or obovate, finely and sharply serrate, pointed;	7

LIST OF TREES.

CO-NIF'-ER-Æ; PINE FAMILY.

- 1. Pl'-NUS. (The *Pines*; trees with evergreen, needle-shaped leaves.)
- Pi'-nus stro'-bus L. White Pine.—A large tree with soft, slender glaucous leaves in fives; scales of the long cone slightly thickened at the end, without prickle or point.
- Pi'-nus rig'-i-da Mill. Pitch Pine.—Leaves in threes, 3-5 in. long from short sheaths; scales of the cone with a short, stout recurved prickle.
- Pi'-nus vir-gin-i-a'-na Mill. ($P.\ inops$ Ait.) Jersey Pine; Scrub Pine.—Leaves in twos, short, $1\frac{1}{2}-3$ in. long; scales of cone tipped with a straight or recurved prickle; a shrub or tall tree.
 - 2. LAR'-IX. (Tree with needleshaped, soft, *deciduous* leaves, many in a fascicle; cones ½ ¾ in. long, scales few, rounded.)
- Lar'-ix lar-i-ci'-na (Du Roi) Koch. (L. americana Mx.) Tamarack; American Larch; Black Larch.—A slender tree growing chiefly in swamps. Northward.
 - 3. TSU'-GA.— (Leaves evergreen, scattered, flat, whitened beneath, somewhat 2-ranked; cones pendulous, scales thin, persistent.)
- Tsu'-ga can-a-den'-sis (L.) Carr. Hemlock; Hemlock Spruce; Spruce.— Leaves petioled, short, linear, obtuse, ½ in. long; cones oval, of few thin scales.
 - 4. THU'-YA. (Leaves persistent, awl-shaped on some branchlets, on others scale-like, blunt, short and adnate; branchlets very flat; cone small, scales few.)
- Thu'-ya oc-ci-den-ta'-lis L. Arbor Vitæ. Leaves appressed, imbricated, in four rows on the 2-edged branchlets; scales of the cones pointless.
 - 5. IU-NIP'-ER-US. (Cedars; trees or shrubs with awl-shaped or scale-like, persistent leaves; cones fleshy, of 3-6 coalescent scales, when mature berry-like, bluish-black with white bloom.)
- Ju-nip'-er-us com-mu'-nis L. Common Juniper. Shrub or small tree; leaves in whorls of three, linear, subulate, rigid, 1/3 3/4 in. long.
- lu-nip'-er-us vir-gin-i-a'-na L. Red Cedar; Savin.—Upright shrub or small tree; leaves mostly opposite, some scale-shaped, others owl-shaped.

JUG-LAN-DA'-CE-Æ; WALNUT FAMILY.

- 6. JUG'-LANS.—(The Walnuts; trees; leaves pinnate; pith in transverse plates).
- Jug'-lans cin-e'-re-a L. Butternut; White Walnut. Leaflets 5-8 pairs, downy especially beneath; petioles and branchlets downy with clammy hairs; fruit oblong.
- Jug'-lans ni'gra L. Black Walnut.—Leaflets 7-11 pairs, the petioles and underside of leaflets minutely downy; fruit spherical; bark darker than in preceding.
 - 7. HIC-O'-RI-A. (Carya.) (The Hickories; large trees, wood tough, leaves pinnate.)
 - A. Husk of fruit thick and woody, splitting promptly.

 (b. Bark shaggy or exfoliating in strips or plates.)
- Hic-o'-ria o-va'-ta (Mill.) Britt. (Carya alba Nutt.) Shell-bark or Shag-bark Hickory.

 Leaflets 5-7, the lower pair much smaller; fruit globular or depressed, nut white, flattish-globular, the shell thinnish.
- Hic-o'-ria la-cin-i-o'-sa (Mx. f.) Sarg. (Carya sulcata Nutt.) Big Shell-bark; King-nut.—Leaflets 7-9; fruit oval or ovate, the husks very thick; nut large, 14/4-2 in. long, usually angular, dull-white or yellowish, thick-walled.
 - (b. Bark close, not exfoliating.)
- Hic-o'-ria alba (L.) Britt. (Carya tomentosa Nutt.) Mocker-nut; White-heart Hickory; Black Hickory.—Catkins, shoots and lower surface of leaves tomentose when young, resinous scented; leaflets 7-9; fruit globular or ovoid, with very thick and hard husk; nut globular, not compressed, 4-ridged toward summit.
- Hic-o'-ri-a mi-cro-car'-pa (Nutt.) Britt. (Carya microcarpa Nutt.) White Hickory.—Bark, buds and foliage like the next, fruit small, subglobose with rather thin husk, nut thin-shelled, not angled.
 - A. Husk thin, 4-valved to middle or tardily to near base; bark not exfoliating.
- Hic-o'-ria glab-ra (Mill.) Britt. (Carya porcina Nutt.) Pig-nut; Brown Hickory.— Shoots, catkins and leaves glabrous or nearly so, leaflets 5-7, fruit pear-shaped, oblong or oval; nut oblong or oval, 1½-2 in. long, with a thick, bony shell.
- Hic-o'-ri-a min'-i-ma (Marsh.) Britt. (Carya amara Nutt.) Bitter-nut; Swamp Hickory.—Buds yellowish, leaflets 7-11, lanceolate; fruit globular, narrowly 6-ridged; nut globular, short pointed, white, thin-walled.

SAL-I-CA'-CE-Æ; WILLOW FAMILY.

- 8. **POP'-U-LUS.** (*Poplar*; *Aspen*; large trees, wood soft, leaves broad.)
 - A. Capsules thin, 2-valved, seeds very small. (b. Petioles laterally flattened.)
- Pop'-u-lus al'-ba L. White Popular.—Younger branches and under surface of the oval sinuate-toothed, acute leaves, white tomentose. Cultivated, sometimes escaped.

- Pop'-u-lus trem-u-loi'-des Mx. American Aspen.—Leaves roundish cordate, teeth small, somewhat regular.
- Pop'-u-lus gran-di-den-ta'-ta Mx. Large-toothed Poplar.—Leaves roundish ovate with large and irregular sinuate teeth.
 - (b. Petioles terete.)
- Pop'-u-lus het-er-o-phyl'-la L. Downy Poplar; Swamp Poplar.—Leaves ovate, crenate, white woolly when young, at length nearly smooth.
 - A. Capsules large, often thick, 2-4-valved.
- Pop'-u-lus bal-sam-if'-er-a L. Balsam Poplar; Tacamahac.—Buds covered with fragrant resin; leaves ovate lanceolate, gradually tapering and pointed, crenate; petioles terete.
- Pop'-u-lus bal-sam-if'-er-a can'-di-cans (Ait.) Gray. Balm-of-Gilead. Like the last, but the leaves broader and more or less cordate; petiole commonly hairy. Cultivated.
- Pop'-u-lus mo-nil-if'-er-a Ait. Cottonwood; Carolina Poplar. Leaves broadly deltoid, acuminate, with crenate serratures; petioles flattened.
 - SA'-LIX. (Willows; trees or shrubs, leaves narrow.)
 A. Native species.
- Sa'-lix ni'-gra Marsh. Black Willow.—Tree; leaves narrowly lanceolate, very long attenuate from near the roundish or acute base to the usually curved tip, green both sides. Common and variable.
- Sa'-lix a-myg-da-loi'-des Anders. Amygdaloid Willow.—Tree; leaves lanceolate or ovate-lanceolate, 2-4 in. long, attenuate cuspidate, pale or glaucous beneath.
 - A. Introduced species.
- Sa'-lix al'-ba L. White Willow. Tree, 50-80 ft. high; leaves ashy-gray or silk-white on both sides except when old. The variety *vitellina* (L.) Koch, with yellow twigs, is very common.
- Sa'-lix bab-y-lon'-i-ca Tourn. Weeping Willow. Commonly cultivated; easily recognized by its pendulous branches and linear lanceolate leaves, glaucous beneath.

BET-U-LA'-CE-Æ: BIRCH FAMILY.

- 10. CAR-PI'-NUS.—(Small trees with smooth, close gray bark; fruit subtended by an involucre-like open, enlarged and foliacious bractlet.)
- Car-pi'-nus car-o-li-ni-a'-na Walt. Blue or Water Beech; Hornbeam; Iron-wood.—

 Leaves ovate or oblong, sharply doubly-serrate, soon nearly smooth.
 - 11. **0S'-TRY-A.**—(Small tree with brownish furrowed bark; bractlets tubular, becoming a closed bladdery bag very much larger than the small nut.)
- Os'-try-a vir-gin'-i-ca (Mill.) Willd. Hop-Hornbeam; Leverwood; Ironwood.—Leaves oblong-ovate, sharply doubly-serrate, downy beneath.

- 12. BET'-U-LA. (The Birches; bark often separable in sheets.)
- Bet'-u-la len'-ta L. Sweet, Black, Cherry or Mahogany Birch.—Bark of trunk dark brown, close, outer layer scarcely laminate; twigs and bark very sweet and aromatic; leaves oblong-ovate, sub-cordate; fruiting catkins oblong-cylindrical, the scales with short, divergent lobes.
- Bet'-u-la lu'-te-a Mx. f. Yellow or Gray Birch.—Bark of trunk yellowish gray or silvery gray, detaching in filmy layers; twigs less aromatic than the preceding; leaves ovate-elliptical, scarcely or not at all cordate; fruiting catkins oblong-ovoid, the scales with narrow, barely spreading lobes.
- Bet'-u-la ni'-gra L. River Birch; Red Birch.—Leaves rhombic-ovate, acutish at both ends, irregularly doubly serrate or obscurely 9-16 lobed; bark reddish or brown, becoming in young trees conspiculously very loose and torn, and finally (in old trees) rough like that of the Black Cherry.
 - 13. AL'-NUS.—(Alders; fertile catkins ovoid or oblong, the scales thick and woody in fruit, persistent; shrubs or small trees.)
- Al'-nus in-ca'-na (L.) Willd. Speckled or Hoary Alder.—Leaves broadly oval or ovate, roundish at base, whitened and mostly downy beneath, fruit orbicular.
- Al'-nus ru-go'-sa (Ehrh.) Koch. (A. serrulata Willd.) Smooth Alder.—Leaves obovate, acute at base, green both sides, fruit ovate.

ORDER FA-GA'-CE-Æ; OAK FAMILY.

- 14. FA'-GUS.— (Tree with a close smooth ash-gray bark.)
- Fa'-gus at-ro-pu-nic'-e-a (Marsh.) Sudw. (F. ferruginea Ait.) Beech.—Leaves oblongovate acuminate, distinctly and often coarsely toothed; nutlets sharply 3-sided, in a soft-prickly coriaceous involucre.
 - 15. CAS-TAN'-E-A.—Trees or shrubs; sterile flowers in long cylindrical showy white catkins; fruit in an ovoid and very prickly involucre.
- Cas-tan'-e-a den-ta'-ta (Marsh.) Sudw. (*C. satava* var. *americana* Gr.) Chestnut.—A very large tree, leaves oblong-lanceolatc, long acuminate, serrate with coarse pointed teeth, smooth and green both sides.
- Cas-tan'-e-a pu'-mi-la (L.) Mill. Chinquapin.—A spreading shrub or small tree; leaves oblong, acute, serrate with pointed teeth, white downy beneath. Reported in southern Ohio.
 - 16. QUER'-CUS.—(Oaks; large trees, wood hard and durable.)
 - A. White Oaks; bark pale, leaves lyrate or sinuate-pinnatifid.
- Quer'-cus al'-ba L. White Oak.—Leaves pale or glaucous beneath, bright green above, obovate oblong, obliquely cut into 3-9 oblong or linear or obtuse, mostly entire lobes; cup saucer-shaped, rough and naked, much shorter than the ovoid or oblong acorn (1 in. long.)

- Quer'-cus mi'-nor (Marsh.) Sarg. (Q. stellata Wang.) Iron Oak; Post Oak.— Leaves grayish or yellowish-downy beneath, pale and rough above, thickish, simuately cut into 5-7 rounded, divergent lobes, the upper ones much larger and often truncate or 1-3 notched; cup deep saucer-shaped, naked, one-third or one-half the length of the ovoid acorn (½-¾ in. long.)
- Quer'-cus ma-cro-car'-pa Mx. Bur Oak.— Leaves obovate-oblong, lyrate pinnatifid or deeply sinuate lobed or nearly parted, sometimes nearly entire, downy or pale beneath, the lobes sparingly or obtusely toothed or the smaller ones entire; acorn broadly ovoid, 1-1½ ins. long, half immersed or enclosed by the fringed cup.
 - A. Chestnut Oaks; bark pale, leaves coarsely sinuate-toothed or slightly lobed or rather pinnatifid in the Swamp White Oak.
- Quer'-cus plat-a-noi'-des (Lam.) Sudw. (Q. bicolor Wild.) Swamp White Oak.—
 Leaves obovate or oblong-obovate, wedge-shaped at base, coarsely sinuatecrenate, or often rather pinnatifid, usually soft downy and white hoary beneath
 fruiting peduncle much longer than the petiole; acorn scarcely 1 in. long, cup
 fringed or the upper scales pointed.
- Quer'-cus pri'-nus L. Chestnut Oak.— Leaves thick, obovate or oblong to lanceolate, undulately crenate-toothed, pale and minutely downy beneath; fruiting peduncle shorter than the petioles; cup ½ in. wide, mostly tuberculate with hard and stout scales; acorn large, sometimes 1-1¼ ins. long.
- Quer'-cus muh-len-ber'-gi-i Englm. Yellow Oak.— Leaves slender-petioled, often oblong or even lanceolate, usually acute or pointed, mostly obtuse at base, almost equally and rather sharply toothed; cup shallow, thin, of small appressed scales, 5-7 lines broad; acorn globose or obovate, 7-9 lines long, sweet, hence the common name of the species Sweet Oak.
 - A. Black Oaks; bark dark, wood porous and brittle, acorns maturing the second year.

 (b. Leaves pinnatifid or lobed, not coriaceous.)
- Quer'-cus ru'-bra L. Red Oak.—Cup saucer-shaped or flat, ¾-1 in. in diameter, acorn oblong-ovoid or ellipsoidal, 1 in. or less in length; leaves moderately (rarely deeply) pinnatifid.
- Quer'-cus coc-cin'-e-a Wang. Scarlet Oak. Cup top-shaped or hemispherical with a conical base, 7-9 lines broad, coarsely scaly, covering half or more of the broadly or globular-ovoid acorn, the scales mostly appressed and glabrate, acorn ½-¾ in. long; leaves deeply pinnatifid, the lobes divergent and sparingly cuttoothed; bark of trunk gray, the interior reddish.
- Quer'-cus ve-lu-ti'-na Lam. (Q. coccinea var. tinctoria Gr.) Black Oak; Quercitron Oak.

 Somewhat resembling the preceding, but the leaves with broader undivided lobes, commonly paler and somewhat pubescent beneath; cup-scales, large and loosely imbricated or squarrose when dry, pubescent; bark of trunk darker colored and rougher, thicker and internally orange.

- Quer'-cus pa-lus'-tris Du Roi. Pin Oak; Swamp Spanish Oak. Cup flat, saucer-shaped, fine-scaled, 5-7 lines broad, very much shorter than the usually globose or depressed acorn which is 5-7 lines long; leaves deeply pinnatifid with divergent lobes. In low grounds.
 - b. Leaves entire or with a few teeth or somewhat lobed at the summit, coriaceous.)
- Quer'-cus ni'-gra L. Black Jack; Barren Oak.—Leaves broadly wedge-shaped, sometimes rounded at base, widely dilated and usually somewhat 3-lobed at the summit, rusty pubescent beneath, 4-9 in. long; cup top-shaped.
- Quer'-cus im-bri-ca'-ri-a Mx. Laurel Oak; Shingle Oak. Leaves entire, lanceolate-oblong, shining above, downy beneath. (A hybrid between this species and Q. coccinea, often called *Quer'cus lea'na* Nutt. [Lea's Oak], occurs sparingly in southern Ohio; its leaves are usually somewhat irregularly and often bristly lobed.)

UL-MA'-CE-Æ; ELM FAMILY.

- 17. UL'-MUS.— (The Elms; handsome trees, with numerous twigs.)
- Ul'-mus pu-bes'-cens Walt. (U. fulva Mx.) Red Elm; Slippery Elm. Buds before expansion soft-downy with rusty hairs; leaves very rough above, soft downy or slightly rough beneath; branchlets downy; inner bark mucilaginous; fruit orbicular, not ciliate.
- Ul'-mus a-mer-i-ca'-na L. White Elm; American Elm.— Buds and branchlets glabrous; leaves 2-4 in. long, soft pubescent beneath or soon glabrous; flowers and ciliate fruit in close fascicles.
- Ul'-mus ra-ce-mo'-sa Thomas. Rock Elm; Cork Elm.— Bud-scales downy ciliate, these and the young branchlets somewhat pubescent; branches often with corky ridges; leaves as in the last or the veins more simple and straight; flowers and ciliate fruit racemed.
 - 18. CEL'-TIS. (Tree usually not large; fruit a globular drupe; bark of trunk ridged, the furrows discontinuous.)
- Cel'-tis oc-ci-den-ta'-lis L. Hackberry; Sugarberry; Nettleberry. Leaves ovate or ovate-lanceolate, sharply serrate, reticulated and 3-nerved at base.

MO-RA'-CE-Æ: MULBERRY FAMILY.

- 19. MO'-RUS. (Mulberry; trees with broad leaves and milky juice.)
- Mo'r-us ru'-bra L. Red Mulberry.—Leaves rough above, downy beneath, those of the young shoots often lobed; fruit dark-purple.
- Mo'-rus al'-ba L. White Mulberry.—Leaves smooth and shining, sometimes lobed; fruit whitish. Occasionally adventive.
 - 20. TOX'-Y-LON.— (Maclura.) (Small tree or shrub, entire shiny leaves, milky juice.
- Tox'-y-lon po-mif'-er-um Raf. (Maclura aurantiaca Nutt.) Osage Orange.—With stout axillary spines. Cultivated for hedges, rarely escaped.

MAG-NO-LI-A'-CE-Æ; MAGNOLIA FAMILY.

- 21. MAG-NO'-LI-A.—(Tree; buds conical; fruit fleshy and rather woody.)
- Mag-no'-li-a a-cu-mi-na'-ta L. Cucumber Tree.—Flower oblong bell-shaped, glaucousgreen tinged with yellow; cone of fruit 2-3 in. long; leaves oblong, 5-10 in. long, pointed.
 - 22. LIR-I-O-DEN'-DRON.— (Tree, buds flat; fruit dry.)
- Lir-i-o-den'-dron tu-lip-if'-er-a L. Tulip Tree; Yellow Poplar; White Wood.—Flower showy, corolla bell-shaped; leaves very smooth, appearing as if cut off abruptly by a broad, shallow notch, few-lobed.

A-NO-NA'-CE-Æ; CUSTARD-APPLE FAMILY.

- 23. A-SIM'-I-NA.—(Small tree, purple flowers in early spring.)
- A-sim'-i-na tril'-o-ba (L.) Dunal. Papaw.—Leaves thin, obovate-lanceolate, pointed; fruit oblong, pulpy, edible.

LAU-RA'-CE-Æ; LAUREL FAMILY.

- 24. SAS'-SA-FRAS.—(Trees often very small, with spicy-aromatic bark and very mucilaginous yellowish-green twigs and foliage; fruit in clustered peduncled corymbed racemes.)
- Sas'-sa-fras sas'-sa-fras (L.) Karst. (S. officinale Nees.) Sassafras.—Leaves ovate, entire or some of them 3-lobed.

HAM-A-ME-LI-DA'-CE-Æ; WITCH-HAZEL FAMILY.

- 25. HAM-A-ME'-LIS.— (Small tree or merely a shrub; the yellow flowers with long and narrow petals; fruit a 2-celled woody capsule.)
- Ham-a-me'-lis vir-gin-i-a'-na L. Witch-Hazel.— Leaves obovate or oval; blossoming late in autumn, the seeds maturing the next summer.
 - 26. LIQ-UID-AM'-BER.— (Fruit a spherical hard catkin or head.)
- Liq-uid-am'-ber sty-ra-cif'-lu-a L. Sweet Gum; Bilsted.—Leaves deeply 5 to 7-lobed, smooth and shining. A large tree of extreme southern Ohio.

PLAT-A-NA'-CE-Æ; PLANE-TREE FAMILY.

- 27. PLAT'-A-NUS.— (Fruit in naked spherical heads; leaves palmately lobed, the base of the petiole concealing the bud.)
- Plat'-a-nus oc-ci-den-ta'-lis L. Sycamore.—A very large tree, the upper portion of trunk and large branches white; the bark deciduous in brittle plates; mostly along streams.

RO-SA'-CE-Æ; ROSE FAMILY.

- 28. **PY'-RUS.**—(Trees or shrubs, with flowers in corymbed cymes, large, fragrant, rose color in the native species; pome globular. Besides the species named below the genus also includes the cultivated Apple, *Pyrus malus* L. and the Pear, *Pyrus communis* L.)
- Py'-rus cor-o-na'-ri-a L. Crab-Apple.—Leaves ovate, often sub-cordate, cut-serrate or lobed, soon glabrous; styles united at base.
- Py'-rus an-gus-ti-fo'-li-a Ait. Crab-Apple.—Resembling the last, but the leaves oblong or lanceolate, often acute at base, mostly toothed, glabrous; styles distinct; blooming earlier.
 - 29. AM-E-LAN'-CHI-ER.—(Small trees with sharply serrate leaves and white racemose flowers; the pome berry-like.)
- Am-e-lan'-chi-er can-a-den'-sis (L.) Medic. Shad-bush; Service-berry; June-berry.— Tree 10-30 ft. high; leaves ovate to ovate-oblong, mostly sub-cordate at base, 1-3½ ins. long; flowers in drooping racemes preceding the leaves, petals 6-8 lines long.
- Am-e-lan'-chi-er bo-try-a'-pi-um (L.f.) DC. (A. canadensis var. oblongifolia T. & G.) Shad-bush; Service-berry; June-berry.—Smaller tree or shrub, 6-10 ft. high; leaves oblong or sometimes rather broadly-elliptical, mostly rounded at base, 1-2 in. long; flowers in denser and shorter racemes; petals 3-4 lines long.
 - CRA-TÆ'-GUS.— (Hawthorn; thorny shrubs or small trees; pome drupe-like, containing 1-5 bony seeds.)
 - A. Leaves broad.
- Cra-tæ'-gus coc-cin'-e-a L. Scarlet Haw; White Thorn.—Branches reddish, spines stout, villous-pubescent on the shoots, glandular peduncles and calyx; leaves on slender petioles, round-ovate, cuneate or sub-cordate at base, glandular-toothed, sometimes cut-lobed; flowers ½ in. broad; fruit coral-red, globose or obovate, ½ in. broad.
- Cra-tæ'-gus ma-cra-can'-tha Lodd. (C. coccinea var. macracantha Dudley.) Large-spine Hawthorn.—Differs from preceding in having longer bright chestnut-brown spines, thicker leaves, sub-coriaceous, cuneate at base, on stout petioles, often deeply incised; cymes broader, flowers and fruit rather larger.
- Cra-tæ'-gus mol'-lis (T. & G.) Scheele. (C. coccinea var. mollis T. & G.) Black Thorn; Scarlet Haw.—Shoots densely pubescent, leaves large, broadly ovate, more or less pubescent beneath; flowers 1 in. broad or more; fruit bright scarlet with a light bloom, 1 in. broad; blooming very early.
- Cra-tæ'-gus to-men-to'-sa L. Black Thorn.— Branches gray; shoots, peduncles and calyx villous-pubescent; leaves large, pale, prominently veined, densely pubescent beneath, contracted into a margined petiole; flowers small, ill-scented; fruit dull red, ½ in. broad; blooming late.

A. Leaves narrower.

- Cra-tæ'-gus punc-ta'-ta Jacq. Black Thorn.—Leaves mostly wedge-obovate, not shining, attenuate and entire near the base, unequally toothed toward the apex, rarely lobed; fruit globose, 1 in. broad.
- Cra-tæ'-gus crus-gal'-li L. Cockspur Thorn.—Thorns slender, often 4 in. long: leaves thick, coriaceous, dark green, shining above, wedge-obovate and lanceolate, serrate above the middle.
 - 31. PRU'-NUS.—(Plum and Cherry: trees or shrubs; drupe fleshy with a bony stone. Besides the species named below, this genus also includes the cultivated Plums, Cherries, Peach, Apricot, etc.)
 - A. Flowers with or preceding the leaves; these and the fruit in umbel-like clusters.
- Pru'-nus a-mer-i-ca'-na Marsh. Wild Yellow or Red Plum.—Tree thorny, 8-20 ft. high; leaves conspicuously pointed, coarsely and doubly serrate, very veiny; fruit ½-¾ in. in diameter.
- Pru'-nus penn-syl-van'-i-ca L. f. Wild Red Cherry.—Tree 20-30 ft. high; leaves pointed, finely and sharply serrate, shining green and smooth both sides; fruit light red, very small, sour.
 - A. Flowers appearing after the leaves; these and the fruit in racemes.
- Pru'-nus vir-gin-i-a'-na L. Choke Cherry.—A tall shrub or occasionally a tree; leaves oval, oblong or obovate, abruptly pointed, very sharply, often doubly serrate with slender teeth, thin; petals roundish.
- Pru'-nus se-rot'-i-na Ehrh. Wild Black Cherry.—A large tree; leaves oblong or lanceolate-oblong, taper-pointed, serrate with incurved short and callous teeth, thickish, shining above; petals obovate.

LE-GU-MIN-O'-SÆ; PEA FAMILY.

- 32. **CER'-CIS.**—(Flowers red-purple, preceding the leaves; leaves round-cordate, pointed.)
- Cer'-cis can-a-den'-sis L. Red-bud.—Small trees in rich soil.
 - 33. GLE-DITSCH'-I-A.— (Large thorny tree.)
- Gle-ditsch'-i-a tri-a-can'-thos L. Honey Locust.—Pods linear-elongated, $1-1\frac{1}{2}$ ft. long; leaves abruptly 1-2 pinnate.
 - 34. GYM-NOC'-LA-DUS.—(Large tree with stout branchlets.)
- Gym-noc'-la-dus di-oi'-cus (L.) Koch. (G. canadensis Lam.) Kentucky Coffee-tree. Coffee-bean.—Leaves 2-pinnate, 2-3 ft. long; pod 2-10 in. long, $\frac{1}{2}$ 2 in. broad.
 - 35. RO-BIN'-I-A.—(Locust; trees or shrubs, often with prickly spines for stipules; flowers showy in hanging axillary racemes. Cultivated and sometimes escaped.)
- Ro-bin'-i-a pseu-da-ca'-ci-a L. Common Locust. Black Locust.—Branchlets not clammy; racemes slender, loose, flowers white, fragrant; pod smooth.

Ro-bin'-i-a vis-co'-sa Vent. Clammy Locust.— Branchlets and leaf-stalks clammy; flowers crowded in oblong racemes, tinged with rose-color; pod glandular-hispid.

SI-MA-RU-BA'-CE-Æ; AILANTHUS FAMILY.

- 36. Al-LAN'-THUS.—(Tree with very long pinnate leaves.)
- Ai-lan'-thus glan-du-lo'-sa Desf. Chinese Tree of Heaven.—Cultivated and occasionally escaped.

AN-A-CAR-DI-A'-CE-Æ; CASHEW FAMILY.

- 37. **RHUS.**—(Sumach; very small trees or shrubs, with resinous or milky, acrid juice.)
 - A. Fruit-clusters terminal, fruit crimson; not poisonous.
- Rhus hir'-ta (L.) Sudw. (R. typhina L.) Staghorn Sumach.—Branches and stalks densely-velvety hairy; leaflets 11-31, pale beneath.
- Rhus glab'-ra L. Smooth Sumach.—Smooth, somewhat glaucous; leaflets 11-31, whitened beneath.
- Rhus co-pal-li'-na L. Dwarf Sumach.—Branches and stalks downy; petioles wing-margined between the 9-21 leaflets.
 - A. Fruit-clusters axillary, fruit whitish; very poisonous.
- Rhus ver'-nix L. (R. venenata DC.) Poison Elder, Sumach or Dogwood.—Shrub, or rarely a tree, 6-18 ft. high; leaflets 7-13, entire; growing in swamps.

AQ-UI-FO-LI-A'-CE-Æ; HOLLY FAMILY.

- 38. I'-LEX.— (Fruit a red berry-like drupe; leaves thick, evergreen.)
- l'-lex o-pa'-ca Ait. American Holly.—Small tree with deep-green, somewhat glossy leaves, evergreen, armed with spiny teeth; in Southern Ohio; very rare.

A-CER-A'-CE-Æ; MAPLE FAMILY.

- 39. A'-CER. (The Maples; trees or shrubs; fruit a double samara.)
 - A. Leaves simple, 3-5-lobed.
 - (b. Flowers in racemes, appearing after the leaves; shrubs or small trees,)
- A'-cer penn-syl-van'-i-cum L. Striped Maple. Leaves 3-lobed at the apex, finely and sharply double-serrate; racemes drooping, loose; petals obovate; fruit with large divergent wings.
- A'-cer spi-ca'-tum Lam. Mountain Maple.—Leaves downy beneath, 3 (or 5)-lobed, coarsely serrate; racemes upright, dense; petals linear-spatulate; fruit with small or divergent wings.
 - (b. Wood hard; flowers in umbellate corymbs, appearing with the leaves.)
- A'-cer sac-char'-um Marsh. (A. saccharinum Wang.) Sugar or Rock Maple. Bark gray; internodes mostly slender and elongated, commonly glossy and reddish; buds gray, conical, slender and acute; no stipules; leaves 5-lobed (a few 3-lobed) with narrow sinuses, 4-7 in. broad, base truncate or slightly cordate with open sinus, light green above, gravish below.

- A'-cer sac-char'-um bar-ba'-tum (Mx.) Trel. Sugar or Rock Maple.—Bark gray to almost black; internodes often shorter and stouter, commonly dull but reddish; buds gray pubescent or dark, conical ovoid, often obtuse; no stipules; leaves 3-lobed with open sinuses (lateral lobes often with dilatations), usually about 4 in. broad, somewhat glossy above, pale or glaucous (often downy) beneath.
- A'-cer ni'-grum Mx. f. (A. saccharinum var. nigrum T. & G.) Black Sugar-Maple.—
 Bark nearly black; internodes stout, sometimes short, dull, buff; buds dark, ovoid, often obtuse; stipules adnate triangular or oblong, foliaceous; leaves 3-5-lobed, usually 5-6 in. broad, with drooping sides, often cordate with closed sinus, dull and dark green above, clear green and usually downy below.
 - (b. Wood soft; flowers in umbel-like clusters; much preceding the leaves.)
- A'-cer sac-cha-ri'-num L. (A. dasycarpum Ehrh.) White or Silver Maple.—Leaves very deeply 5-lobed, with the sinuses rather acute, silvery-white underneath, the divisions narrow, cut-lobed and toothed; petals none; fruit woolly when young, with large divergent wings.
- A'-cer ru'-brum L. Red or Swamp Maple.—Leaves 3-5 lobed with acute sinuses, whitish underneath, the lobes irregularly serrate and notched; petals linear-oblong; fruit smooth, on prolonged, drooping pedicels.
 - A. Leaves pinnate; leaflets 3-5.
- A'-cer ne-gun'-do L: (Negundo aceroides Mœnch.) Box Elder; Ash-leaved Maple.—
 Tree, the twigs light green; petals none; fruit in drooping racemes.

HIP-PO-CAS-TAN-A'-CE-Æ; BUCKEYE FAMILY.

- 40. ÆS'-CU-LUS. (The Buckeyes; Trees or shubs; flowers and fruit showy.)
- Æs'-cu-lus glab'-ra Willd. Fetid or Ohio Buckeye. Fruit covered with prickles when young; leaflets usually 5, 3-6 in. long; ill-scented.
- Æs'-cu-lus oc-tan'-dra Marsh. (Æ. flava Ait.) Sweet Buckeye.—Fruit smooth; leaflets 5, sometimes 7, 4-7 in. long, glabrous or often minutely downy beneath; bark of trunk whiter than in the preceding.

TIL-I-A'-CE-Æ; LINDEN FAMILY.

- 41. TIL'-I-A.— (The Lindens; trees with soft, white wood and tough inner bark.)
- Til'-i-a a-mer-i-ca'-na L. Basswood. Leaves large, green and glabrous, or nearly so; peduncle adnate to a leaf-like bract. Widely distributed.
- Til'-i-a het-er-o-phyl'-la Vent. White Basswood.— Like the preceding, but leaves smooth and bright-green above, silery-whitened with a fine down underneath. In the extreme southern part of the State.

COR-NA'-CE-Æ; DOGWOOD FAMILY.

- 42. **COR'-NUS.** (The *Dogwoods*; small trees or shrubs, flowers showy.)
- Cor'-nus flor'-i-da L. Dogwood. Tree 12-40 ft. high; fruit oval, bright red; leaves ovate-pointed, opposite.

- Cor'-nus al-ter-ni-fo'-li-a L. f. Alternate-Leaved Cornel. Shrub or tree, 8-25 ft. high; branches greenish, streaked with white; *leaves alternate*, clustered at the ends, ovate or oval, long pointed, acute at base, whitish and minutely pubescent beneath; fruit deep blue, on reddish stalks.
 - 43. NYS'-SA. (Tree 50-100 ft. high, wood rather soft, but unwedgeable.)
- Nys'-sa a-quat'-i-ca L. (N. sylvatica Marsh.) Sour or Black Gum; Tupelo; Pepperidge.— Leaves oval or obovate, alternate but mostly crowded at the ends of the branches, turning bright crimson in autumn.

ER-I-CA'-CE-Æ; HEATH FAMILY.

- 44. **OX-Y-DEN'-DRON.** (Tree 15-40 ft. high, with white flowers and oblong capsules in long one-sided racemes.)
- Ox-y-den'-dron ar-bo'-re-um (L.) DC. Sorrel Tree; Sourwood.—Leaves oblong-lance-olate, serrulate; the flowers and fruit terminating the branches.

EB-EN-A'-CE-Æ; EBONY FAMILY.

- 45. DI-OS-PY'-ROS. (Small or medium sized tree, bark rough and dark.)
- Di-os-py'-ros vir-gin-i-a'-na L. Persimmon. Leaves ovate-oblong, thickish entire; fruit plum-like, very astringent, sweet and edible after exposure to frost.

O-LE-A'-CE-Æ: OLIVE FAMILY.

- 46. FRAX'-I-NUS.— (Ash; trees with pinnate leaves, fruit a samara, winged at the apex.)
 - A. Leaflets with short petioles.
- Frax'-i-nus a-mer-i-ca'-na L. White Ash.—Branchlets and petioles glabrous; leaflets 7-9, ovate-oblong or lanceolate-oblong, pointed, pale beneath, entire or sparingly serrate or denticulate.
- Frax'-i-nus penn-syl-van'-i-ca Marsh. (P. pubescens Lam.) Red Ash.—Branchlets and petioles velvety-pubescent; leaflets 7-9, ovate or ovate-lanceolate, taper-pointed, almost entire, pale or more or less pubescent beneath.
- Frax'-i-nus lan-ce-o-la'-ta Borck. (F. viridis Mx.) Green Ash.—Glabrous throughout; leaflets 5-9, ovate or oblong-lanceolate, often wedge-shaped at base and serrate above, bright green both sides.
- Frax'-i-nus quad-ran-gu-la'-ta Mx. Blue Ash.—Bark lighter than in the preceding species; branchlets *square* at least on vigorous shoots, leaflets 7-9, oblong-ovate or lanceolate, sharply serrate, green both sides.
 - A. Lateral leaflets sessile.
- Frax'-i-nus ni'-gra Marsh. (F. sambucifolia Lam.) Black Ash.—Bark scarcely furrowed; branches and petioles glabrous; leaflets 7-11, sessile, oblong-lanceolate, serrate, obtuse or rounded at base. In swamps and wet places.

BIG-NO-NI-A'-CE-Æ; BIGNONIA FAMILY.

47. CATALPA.— (Trees; leaves simple, entire.)

Ca-tal'-pa spe-ci-o'-sa Warder. Western Catalpa.—Leaves truncate or subcordate at base, slenderly acuminate, soft-downy beneath, inodorous; flowers larger than in the next; lower lobe of the corolla emarginate or deeply notched; pod 8-20 in. long, 17-20 lines in circumference.

Ca-tal'-pa ca-tal'-pa (L.) Karst. (C. bignonioides Walt.) Southern Catalpa; Indian Bean.—Leaves cordate, pointed, downy beneath, disagreeable (almost fetid) when touched; corolla 1½ in. long, white, tinged with violet, dotted in the throat with yellow and purple; lower lobe entire; pod 8-10 in. long, 9-12 lines in circumference.

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